

# 9 to 15 GHz

## DIGITALLY TUNED OSCILLATOR

DTO-12000-50M

### Overview:

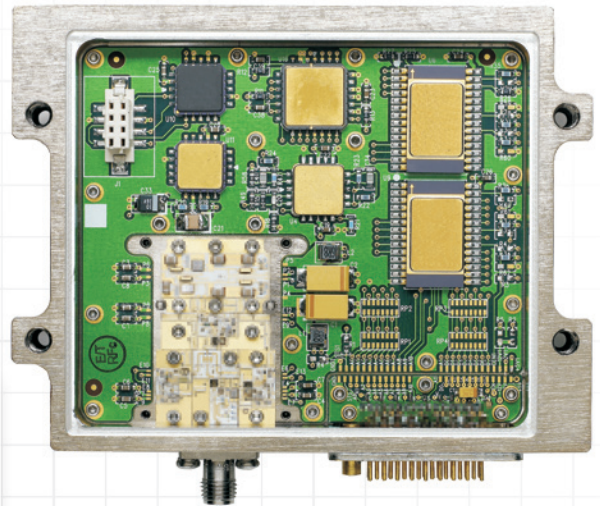
NI's fast-settling, low phase noise DTO-12000-50M is ideal for critical applications in radar simulators and electronic warfare systems. It uses high-performance Si BJTs and silicon varactor diodes to realize multiple wideband sources, which are combined using Wilkinson power combiners. GaAs MMIC buffer amplifiers provide the necessary power output and load isolation of the oscillator. Efficient use of EEPROMs yields high accuracy, high resolution, and high linearity. In addition, a proprietary technique is used to achieve fast switching and low spurious.

### Features:

- Digital tuning using 12-bit parallel word input
- Frequency bandwidth 9 to 15 GHz
- Low phase noise -75 dBc/Hz @ 100 kHz
- Fast settlingly <math>\pm 2\text{ MHz}</math> @ 2  $\mu\text{s}$
- EEPROM linearized

### Applications:

- Wideband digitally tuned source
- High-reliability military applications
- Simulators
- EW systems



## Specifications

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	UNITS	RATING
Positive Supply Voltage	V	+14
Negative Supply Voltage	V	-14
Operating Temperature	C	-50° to +95°
Storage Temperature	C	-40° to +125°

### ELECTRICAL SPECIFICATIONS (measured at -40° to +85°)

PARAMETER	UNITS	MIN.	TYP.	MAX.
Frequency $f_0$	GHz	9		15
Tuning	DTW		Parallel 12 bit	

### ELECTRICAL SPECIFICATIONS (continued)

PARAMETER	UNITS	MIN.	TYP.	MAX.
Output Power (50 ohms load)	dBm	15		19
Frequency Settling (@ 2 $\mu\text{s}$ )	$\pm\text{MHz}$			2
Post-Tuning Drift (1 $\mu\text{s}$ to 1 s)	MHz			2
Digital Tuning Sensitivity	MHz/bit		2	
Output Return Loss	dB	12	14	
Harmonics (below carrier)	dBc			-20
Spurious Output (below carrier)	dBc			-70
Phase Noise @ 100 kHz from $f_0$	dBc/Hz		-75	-70
Freq. Drift over Temp.	MHz			120

# 9 to 15 GHz

## DIGITALLY TUNED OSCILLATOR

Model DTO-12000-50M

Specifications and ordering information subject to change without notice.

### Specifications (continued)

#### ELECTRICAL SPECIFICATIONS (continued)

PARAMETER	UNITS	MIN.	TYP.	MAX.
Pulling Figure (12 dB Return Loss)	MHz			10
Pushing Figure ( $\pm 0.2$ V)	MHz			10
Positive Supply Voltage	V	+11.5	+12	+12.5
Positive Supply Current	mA		400	500
Negative Supply Voltage	V	-11.5	-12	-12.5
Negative Supply Current	mA			50

#### MECHANICAL SPECIFICATIONS

DESCRIPTION	SPECIFICATION
Size (W x L x H)	4 x 3 x 0.5 inches
Connectors	SMA, 3-row 26-pin connector

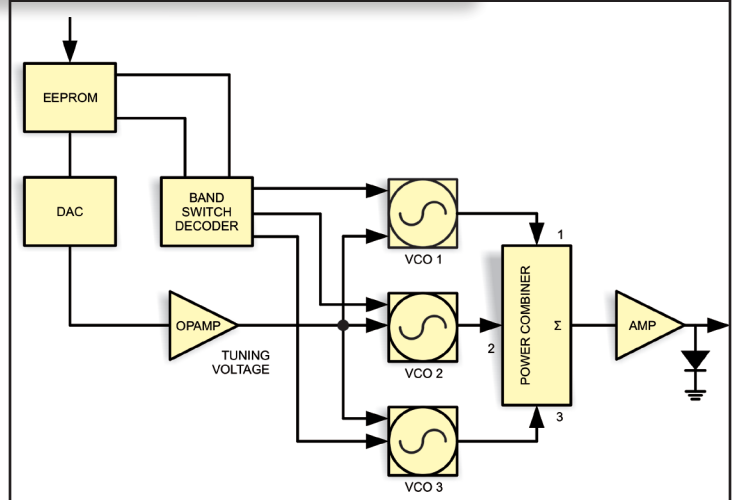
### Ordering Information

#### ORDERING INFORMATION

##### MODEL NUMBER

DTO-12000-50M

### Functional Block Diagram



Data sheet PN: DS.DTO-12000 Rev. 3

© 2014 National Instruments. All rights reserved.